

REMARKS

This Amendment is in response to the Official Action mailed November 14, 2008. A request for a one-month extension of time accompanies this Amendment. Claims 2-4, 6, 7 and 10 have been cancelled. Claims 1, 5, 8, 9 and 11 have been amended. Accordingly, claims 1, 5, 8, 9 and 11 remain pending in this application. Reconsideration and withdrawal of the objections to and rejections of this application are respectfully requested in view of the above amendments, and further, in view of the following remarks.

Preliminarily, Applicants note that independent process claim 1 and the product-by-process (apparatus) claims dependent thereon, have been amended to clarify that the process and apparatus relate to a toothbrush having transverse elastomer ribs across the surface opposite to its bristles which is made by using a mold block which is split longitudinally, i.e., perpendicular to the transverse elongate direction of these ribs.

Claims 1 and 2 have been rejected under 35 USC §103(a), as being unpatentable over Leversby WO 94/05183, in view of Cann US 6,514,445 and further Steinebrunner DE-A-10104034. Reconsideration and withdrawal of the rejection are respectfully requested.

The Action alleges that Leversby discloses an injection molding process for making a two-component plastic-elastic toothbrush, and Cann discloses use of thermoplastic elastomer in such a process. This is not disputed; but, as the Action admits, this combination is not sufficient to make a *prima facie* case of obviousness. Indeed, the Action further alleges that Steinebrunner discloses a toothbrush molding process in which a vent channel for gases in the mold cavity is provided in the second mold block, i.e., the block defining the shape of the toothbrush head opposite to the surface from which the bristles extend. The Action alleges that Steinebrunner consequently makes the process and construction of mold claimed in the present invention obvious.

This is not the case. As can be seen from the figures 1 and 2 of Steinebrunner, the mold used in Steinebrunner's process comprises two part mold blocks 3 and 4 which meet at the primary split line 5. Fig. 2 makes clear that during the molding process air escapes via the primary split line 5, i.e., forcing its way between the two mold blocks 3,4 via the split line 5 across the "Zwischensteg" 13. After the gas has escaped from the mold cavity in this way it leaves the mold block via the venting channels 12-14. Also, Steinebrunner does not make a two component toothbrush head but only uses single component plastic material, so gives no guidance on flow problems that might occur with use of elastomer as in the present invention.

Nor does Steinebrunner contemplate or solve the problem addressed by the present invention (present page 2, lines 4-12) of injection molding a toothbrush head where the injected fluid material needs to flow in the complex flow patterns defined by the present lateral ribs. In Steinebrunner the injected plastic material flows only in a single direction along the cavity 6 into the part of this cavity that defines the head, and generally outwardly as it fills the cavity to form the head part. In contrast to the present invention there are no complex flow patterns in the toothbrush head of Steinebrunner. Therefore Steinebrunner has no need for the present more complex mold construction and neither discloses nor suggests the present construction.

Applicants submit that any fair reading of the cited documents, alone, or in combination, fails to establish a *prima facie* case of obviousness. Favorable reconsideration of the rejection is requested.

Claim 3 has been rejected under 35 USC §103(a), as being unpatentable over Leversby WO 94/05183 in view of Cann US 6,514,445, Steinebrunner DE-A-10104034 and further Britz US 4,909,972. Reconsideration and withdrawal of the rejection are respectfully requested.

The Action alleges that Leversby discloses an injection molding process for making a two-component plastic-elastic toothbrush with a venting means with the second mold block. This is incorrect, but for the sake of argument it is assumed the Action meant the combination Leversby, Cann and Steinebrunner as applied to claims 1 and 2 above, and Britz specifically applied to present claim 3, which specifically covers a longitudinally split second mold block. Reconsideration and withdrawal of the rejection are respectfully requested.

Britz discloses a molding process in which a ring-shaped foam elastic insert for a vehicle tire is made. Figs. 4 and 5 of Britz disclose mold structures in which a mold block is split at a primary line 62, and one of the part mold blocks is split at a second line 54 which is said, at Britz col. 7, lines 35-40, to provide a way of escape for air and excess material during the process. The Action alleges that this makes the present claimed second split line obvious.

Applicants respectfully disagree. In Britz the molding process is not an injection molding process. Instead, in Britz the mold is first provided open, in its two halves, then the molding composition is mixed and introduced into one mold half e.g., by hand pouring, then the second mold half is closed over the first mold half. The molding composition reacts chemically to typically form a polyurethane, and at the same time generates gas bubbles which expand the composition into a foam. See, Britz col. 1, lines 48-52, col. 2, line 47 through col. 3, line 15, col. 6, lines 1-32, etc. When the reaction is finished the mold is opened and the product is extracted.

Britz therefore differs significantly from the process and apparatus of the present invention. First, Britz produces a large, simple shaped product being a toroid to be fitted inside a

tire, typically a bicycle tire. Consequently in Britz, there are none of the complex flow patterns experienced by the injected elastomer in the present invention in which, e.g., as shown in present Fig. 4, the elastomer has to flow in a confined space in opposite colliding directions at a point distant from the primary split line, caused by the need to form the claimed ribs. There is no reason why the skilled reader would assume the split line of Britz should be adaptable to the present much smaller, more complex shape.

Second, in Britz a foaming composition is introduced into the mold, then this is closed and the formulation inside is left to expand. Such a composition generates foaming gas and it is likely that excessive volumes of such gas are produced within the mold cavity in excess of the air already within the cavity. In the present process there is only the residual air present in the cavity.

Thirdly Britz's process appears to be a relatively slow batch process of filling and assembling moulds, then waiting "for about 60 minutes" (see, col. 6, line 20) until the composition sets. In contrast, it is common knowledge that in the field of toothbrush manufacture the injection molding operation of the present process would be carried out as a high speed operation making many toothbrush heads a second. There is no reason why the skilled reader would expect a feature of Britz's slow manual process to be applicable to a high speed mass production industrial process.

Therefore amended claim 1 is non-obvious over the cited combination. Favorable reconsideration of the rejection is requested.

Claim 4 has been rejected under 35 USC §103(a), as being unpatentable over Leversby WO 94/05183 in view of Cann US 6,514,445, Steinebrunner DE-A-10104034 and further Britz US 4,909,972 and Davies WO-A-04/041025. Reconsideration and withdrawal of the rejection are respectfully requested.

The Action applies Leversby, Cann, Steinebrunner and Britz as above, and further alleges that Davies makes the claimed shape of the elastomer ribs obvious. Davies discloses transverse ribs 6 which are made of thermoplastic elastomer material (see, page 2, line 15).

However Davies gives no information whatsoever as to how such ribs might be made, and certainly no suggestion of the problem addressed by the present invention, that of complex flow patterns in the injection mold necessary to make these ribs. Therefore Davies adds nothing beyond Leversby, Cann, Steinebrunner and Britz to suggest the present invention, as now claimed in amended claim 1.

Therefore amended claim 1 is non-obvious over the cited combination. Favorable reconsideration of the rejection is requested

Claims 5 and 6 have been rejected under 35 USC §103(a), as being unpatentable over Leversby WO 94/05183 in view of Steinebrunner DE-A-10104034. Reconsideration and withdrawal of the rejection are respectfully requested.

Claim 5 has been amended and now recites an apparatus made by a process as claimed in claim 1. The Action's allegation is essentially identical to that directed above against claims 1 and 2 which claimed this feature as it appeared in the process, but now applied to the claimed apparatus for performing the process of claims 1 and 2 rather than as above against the process itself.

Precisely the same arguments in response as used above consequently apply, that the construction of mold in Steinebrunner does not suggest any modification to Leversby's mold that would lead to the present invention as now claimed in amended claim 5.

Therefore amended claim 5 is non-obvious over the cited combination. Favorable reconsideration of the rejection is requested

Claim 7 has been rejected under 35 USC §103(a), as being unpatentable over Leversby WO 94/05183 in view of Steinebrunner DE-A-10104034 and further Britz US 4,909,972. Reconsideration and withdrawal of the rejection are respectfully requested.

Claim 7 was a former apparatus claim, specifically directed to the second mold block being split to provide a way of escape for gases in the mold cavity. Claim 7 has been cancelled making the rejection moot. Withdrawal of the rejection is requested

Claim 8 has been rejected under 35 USC §103(a), as being unpatentable over Leversby WO 94/05183, in view of Steinebrunner DE-A-10104034, Britz US 4,909,972 and Davies WO-A-04/041025. Reconsideration and withdrawal of the rejection are respectfully requested.

Claim 8 has been amended and is now dependent on amended claim 5. The Action's allegation is essentially identical to that directed above against cancelled claim 4 which claimed these elastomer ribs as they appeared in the process, but now applied to the claimed apparatus for performing the process of claim 4 rather than as above against the process itself. Precisely the same arguments in response as used above consequently apply, that Davies and Britz do not suggest any modification to Leversby or Steinebrunner's mold that would lead to the present amended claims.

Therefore amended claim 5 is non-obvious over the cited combination. Favorable reconsideration of the rejection is requested.

Claim 9 has been rejected under 35 USC §103(a), as being unpatentable over Leversby WO 94/05183, in view of Cann US 6,514,445 and further in view of Davies WO-A-04/041025. Reconsideration and withdrawal of the rejection are respectfully requested.

Amended claim 9 is now dependent on amended claim 1. The Action applies Leversby and Davies substantially as above, i.e., that Leversby discloses a two-component toothbrush injection moulding process generally, and that Davies discloses the present claimed transverse ribs. The Action further alleges that Cann discloses the moulding temperature of 240-260°C. Cann discloses use of temperatures 240-260°C, e.g., 245°C to fuse the elastomer to the plastic material.

As discussed above, amended claim 1 is based upon a combination of features which is not disclosed or suggested in Leversby plus Davies. Apart from the suggested temperatures Cann provides no teaching as to a suitable construction of mold for the molding operation by which the elastomer parts of the toothbrush are made, in particular no suggestion of a split second mold block.

Therefore amended claim 9 is non-obvious over the cited combination. Favorable reconsideration of the rejection is requested.

Claims 10 and 11 have been rejected under 35 USC §103(a), as being unpatentable over Leversby WO 94/05183, in view of Cann US 6,514,445 and Davies WO-A-04/041025, and further in view of Torniainen US 6,306,238. Reconsideration and withdrawal of the rejection are respectfully requested.

Claim 10 has been cancelled, and claim 11 has been amended to depend on amended claim 9. The Action applies Leversby, Cann and Davies substantially as above, i.e., that these three documents disclose a two-component toothbrush injection moulding process generally, that Cann discloses thermoplastic elastomer, that Davies discloses the present claimed transverse ribs. The Action further alleges that Torniainen discloses the ejection temperature of above 20°C. The process of new amended claim 11 uses an ejection temperature of 30-40°C. This is not disclosed or suggested by Torniainen. Moreover Torniainen relates to mold ejection temperatures after the molding of plastic articles, not the elastomer articles of the present invention. Neither does Torniainen teach anything that might suggest the mold construction claimed in parent claim 1.

Claim 11 as amended, ultimately depends from claim 1. As shown above, new amended claim 1 is based upon a combination of features which is not disclosed or suggested in Leversby plus Davies. Apart from the suggested temperatures, Cann provides no teaching as to a suitable construction of mold for the molding operation by which the elastomer parts of the toothbrush are made, in particular no suggestion of a split second mold block.

Therefore amended claim 11 is non-obvious over the cited combination. Favorable reconsideration of the rejection is requested.

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In view of the foregoing, favorable reconsideration of claims 1, 5, 8, 9 and 11 and allowance of this application are earnestly solicited.

Respectfully submitted,

A handwritten signature in cursive script, reading "Nora Stein-Fernandez".

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